

# Voltage Monitoring Relays

## 355 Series

### 3-Phase Voltage/Phase Monitor



## Description

The 355 series is a three-phase voltage monitor with adjustable trip and restart delay, adjustable voltage unbalance, and multiple diagnostic lights. It is ideal for heavy-duty applications that need both protection and simple user-friendly diagnostics. Suitable applications include pump panels, commercial HVAC, oil rigs, and many more. The 355 series uses microcontroller technology to monitor incoming voltage and de-energize its output relay if power problems exist. It can protect motors from damage caused by single-phasing, high- and low-voltage, phase reversal, and voltage unbalance. These relays have four diagnostic LEDs that clearly show overvoltage, undervoltage, voltage unbalance, reverse-phase, and normal conditions. The adjustable trip and restart settings prevent nuisance tripping due to rapidly fluctuating power line conditions and allow staggered start-up of multiple motors after a fault to prevent a low-voltage condition.

Series 355 models include the 355-200, which is equipped with a heavy-duty 10 A general purpose SPDT relay. The 355-400 and 355-600 models are equipped with a 470 VA @ 600 V ac pilot duty SPDT relay. A high-voltage (600 V) DPDT relay output option is available with the 400 V model.

## Features & Benefits

| FEATURES   | BENEFITS   |
|--|--|
| <b>Proprietary microcontroller-based circuitry</b>         | Constantly monitors three-phase voltage to protect against harmful line conditions even before the motor is started          |
| <b>Advanced LED indication</b>                             | Provides diagnostics that can be used for troubleshooting and to determine relay status                                      |
| <b>Adjustable trip and restart delay settings</b>          | Prevents nuisance tripping and allows staggered start-up of multiple motors after a fault to prevent a low-voltage condition |
| <b>600 V rated relay contacts available on some models</b> | Eliminates the need for a control transformer to step voltage down to 120–240 V for a control circuit                        |

## Applications

- Pump panels
- Commercial HVAC
- Oil rigs
- Heavy-duty applications that need both protection and simple user-friendly diagnostics

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### Specifications

#### Input Characteristics

##### Line Voltage (Specify voltage range)

|        |              |
|--------|--------------|
| 355200 | 190–240 V ac |
| 355400 | 380–480 V ac |
| 355600 | 475–600 V ac |

##### Frequency

50\*/60 Hz

#### Functional Characteristics

##### Low Voltage (% of setpoint)

|       |         |
|-------|---------|
| Trip  | 90% ±1% |
| Reset | 93% ±1% |

##### High Voltage (% of setpoint)

|       |          |
|-------|----------|
| Trip  | 110% ±1% |
| Reset | 107% ±1% |

##### Voltage Unbalance (NEMA)

|       |                       |
|-------|-----------------------|
| Trip  | 2–8% adjustable       |
| Reset | Trip setting minus 1% |

##### Trip Delay Time

Low & High Voltage and Unbalance 2–30 seconds adjustable

##### Single-phasing Faults (>25% UB)

2 seconds

##### Restart Delay Time

After a Fault or Power Loss Manual, 2–300 seconds adjustable

#### Output Characteristics

##### Output Contact Rating

###### SPDT (355200)

|                 |                    |
|-----------------|--------------------|
| Pilot Duty      | 480 VA at 240 V ac |
| General Purpose | 10 A               |

###### SPDT (355400, 355600)

|            |                   |
|------------|-------------------|
| Pilot Duty | 470 VA @ 600 V ac |
|------------|-------------------|

###### DPDT (-5 Option)

|            |                   |
|------------|-------------------|
| Pilot Duty | 470 VA @ 600 V ac |
|------------|-------------------|

#### General Characteristics

##### Temperature Range

|           |                                |
|-----------|--------------------------------|
| Operating | -40° to 70 °C (-40° to 158 °F) |
| Storage   | -40° to 80 °C (-40° to 176 °F) |

##### Repeat Accuracy

|                     |       |
|---------------------|-------|
| Fixed Conditions    | ±0.1% |
| Maximum Input Power | 6 W   |

##### Terminal Torque

7 in.-lbs.

##### Wire Size

12–18 AWG

##### Transient Protection (Internal)

2500 V for 10 ms

##### Dimensions

**H** 74.42 mm (2.93"); **W** 133.86 mm (5.27"); **D** 74.93 mm (2.95")

##### Weight

0.94 lb. (15.04 oz., 426.38 g)

##### Mounting Method

#8 screws

##### Special Options

Option 5 - DPDT Relay

\*Note: 50 Hz will increase all delay times by 20%.

### Certification & Compliance

UL

UL 508 (File #E68520)

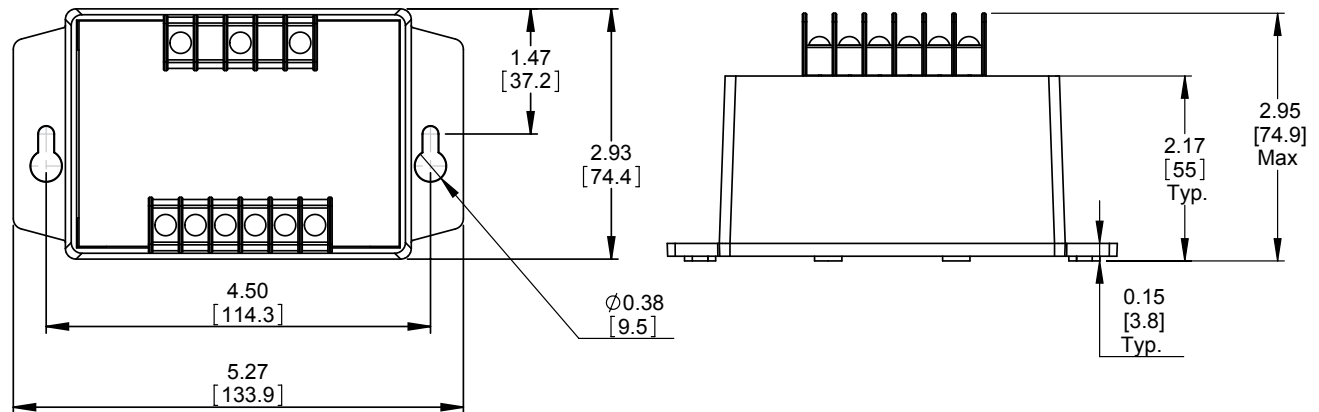
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### Ordering Information

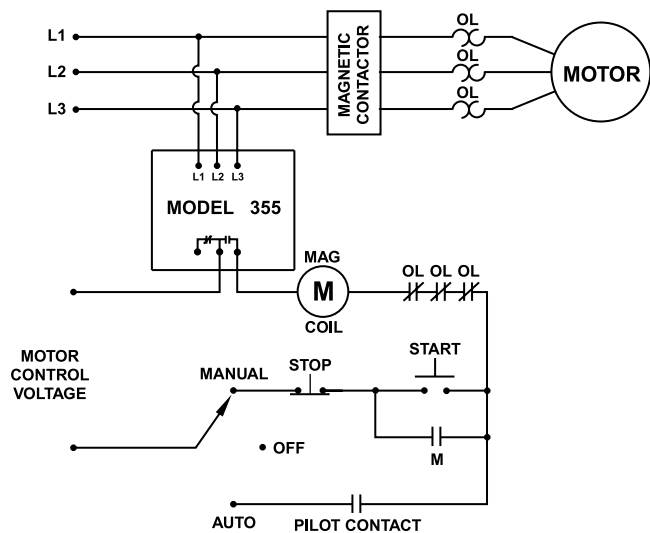
| MODEL   | LINE VOLTAGE | DESCRIPTION |
|---------|--------------|-------------|
| 355200  | 190–240 V ac | SPDT        |
| 355400  | 380–480 V ac | SPDT        |
| 3554005 | 380–480 V ac | DPDT        |
| 355600  | 475–600 V ac | SPDT        |

### Dimensions Inches (mm)

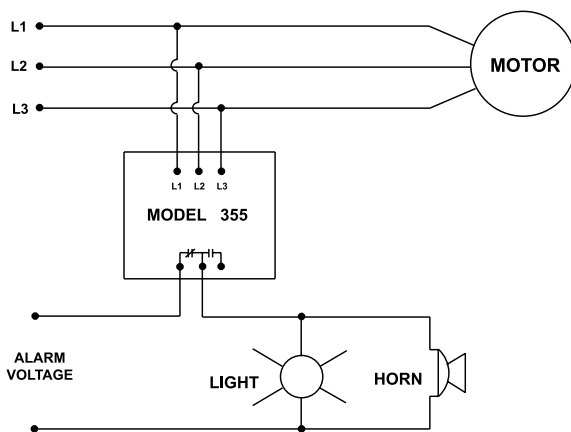


### Wiring Diagram

TYPICAL WIRING DIAGRAM FOR MODEL 355 WITH MOTOR CONTROL



TYPICAL WIRING DIAGRAM FOR MODEL 355 WITH ALARM CONTROL



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